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METHOD OF TEST FOR CORRUGATED FIBREBOARD

PART IV DETERMINATION OF SUBSTANCE OF THE COMPONENTS PAPERS AFTER SEPARATION

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Indian Standard

METHOD OF TEST FOR CORRUGATED FIBREBOARD

PART IV DETERMINATION OF SUBSTANCE OF THE COMPONENT PAPERS AFTER SEPARATION

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Indian Standard

METHOD OF TEST FOR CORRUGATED FIBREBOARD

PART IV DETERMINATION OF SUBSTANCE OF THE COMPONENT PAPERS AFTER SEPARATION

0. FOREWORD

0.1 This Indian Standard (Part IV) was adopted by the Indian Standards Institution on 30 June 1976, after the draft finalized by the Paper and Flexible Packaging Sectional Committee had been approved by the Marine, Cargo Movement and Packaging Division Council.

0.2 The increasing use of corrugated fibreboard for transport containers has given an impetus to this industry for expansion. The growing demand for this product has brought to the fore the need for evaluating the various physical characteristics of the corrugated board.

0.3 The following standards on test methods for these characteristics are being established for proper evaluation and reproducibility of the test results under different conditions:

IS : 7063 (Part I)-1973 Methods of test for corrugated fibreboard: Part I Thickness of board

IS : 7063 (Part II)-1976 Methods of test for corrrugated fibreboard: Part II Edgewise crush resistance of board

IS : 7063 (Part III)-1976 Methods of test for corrugated fibreboard: Part III Water resistance of glue bond by immersion

IS : 7063 (Part IV)-1976 Methods of test for corrugated fibreboard: Part IV Determination of substance of the component papers after separation

0.4 For international coordination and recognition, this standard has been based on ISO 3039-1975 ' Corrugated fibreboard — Determination of the grammage of the component papers after separation', issued by the International Organization for Standardization.

0.5 In reporting the result of the test made in accordance with this standard, if the final value observed or calculated, is to be rounded off, it shall be done in accordance with IS : 2-1960*.

1. SCOPE

1.1 This standard (Part IV) specifies the apparatus and the test procedure for determining the substance of the individual papers from which corrugated fibreboard has been made.

1.1.1 This method is applicable to all types of corrugated fibreboard.

2. TERMINOLOGY

2.0 For the purpose of this standard, the following definition shall apply.

2.1 Substance — Mass of a given specimen of paper in grams per square metre under standard atmospheric conditions [*see* IS : 1060 (Part I)-1966†].

3. PRINCIPLE

3.1 Test specimens of corrugated fibreboard are treated so that the individual components can be separated. The component papers are then dried and conditioned, and subsequently used for the determination of their substance in accordance with **6** of IS : 1060 (Part I)-1966†.

4. APPARATUS

4.1 Tank — of suitable size for immersion of the corrugated fibreboard test pieces and to contain hot or cold water.

4.2 Drier — similar to the type used for drying photographic prints.

4.3 Cutter — Cutting instrument having a circularly guided knife to cut test pieces with an area of 100 cm^2 (diameter 113·0 ± 0·5 mm) should preferably be used.

4.4 Balance — with sensitivity of 0·01 g or better over the entire measuring range. This will make it possible to determine the substance of the papers from test pieces of 100 cm^2 area to a precision of 1 g.

5. SAMPLING AND PREPARATION OF TEST PIECES

5.1 Sampling — Representative samples for the determination of substance of the component papers shall be drawn as described in **3** of IS : 1060 (Part I)-1966†.

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*Rules for rounding off numerical values (*revised*).

†Methods of sampling and test for paper and allied products, Part I (*revised*).

5.1.1 Individual specimens of sufficient size to provide the test pieces shall be cut from the samples drawn. The surfaces of the corrugated fibreboard shall be free from any damage that may affect the test results. The specimens should preferably be taken from non-printed and non-coated fibreboard.

5.2 Preparation of Test Pieces — Cut test pieces each of not less than 100 cm^2 area using a cutting device as described in **4.3**. The cut edges shall be clean and perpendicular to the faces of corrugated fibreboard.

6. CONDITIONING

6.1 Test specimens shall be conditioned as prescribed in **5** of IS : 1060 (Part I)-1966*.

7. PROCEDURE

7.1 Separation of Component Papers — Immerse the test pieces in water long enough to cause the component sheets of papers to separate spontaneously or with an extremely light pull. Care shall be taken in separating the papers that no fibres are removed from a surface and adhere to the adjoining one. To accelerate the process and to separate corrugated fibreboard whose glue bond is more or less moisture resistant, hot water may be used.

7.2 Removal of Adhesive — Adhesive showing on the surface of the paper which has not been absorbed by the paper may be removed while wet by lightly scraping the surface.

7.3 Drying of the Separated Papers — Dry the individual papers at a temperature not exceeding 105°C and condition them in accordance with **5** of IS : 1060 (Part I)-1966*.

7.4 Fluting Medium — After cleaning and conditioning flatten the fluting medium and re-cut to give an area of 100 cm^2.

7.5 Determination of Substance — Unless otherwise agreed between the interested parties, the substance of the component papers of five test pieces of corrugated fibreboard shall be determined in accordance with **6** of IS : 1060 (Part I)-1966*.

7.5.1 Each component paper of each test piece shall be weighed individually to the nearest 0·01 g. The weighing shall be carried out in the conditioning atmosphere (*see* **7.3**).

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*Methods of sampling and test for paper and allied products, Part I (*revised*).

8. TEST RESULTS

8.1 For each determination, calculate and express the substance in grams per square metre to the nearest whole number (weighing to 0·01 g). Calculate the mean of the results.

8.1.1 For each paper composing the corrugated fibreboard the arithmetic mean of the results given by each test piece constitutes the substance of the lot.

9. TEST REPORT

9.1 Test report shall include the following particulars:

a) Date and place of testing;
b) Description and identification of the corrugated fibreboard tested;
c) Description and identification of the individual papers;
d) Number of test pieces;
e) Results of the individual tests in grams per square metre represented from outer to inner layer;
f) Arithmetic mean of the individual tests;
g) Details of any deviation from this Indian Standard; and
h) Any other information which may be useful for the interpretation of the test results.

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